OhioEPA
Ohio Environmental Protection Agency
Division of Surface Water

Biosolids Agronomic Rate Calculation Worksheet

General Information

Ohio EPA #	59-00079	
Field ID #	MOQ-03-01	
Generator Name	Emerald Bioenergy	

Biosolids Data and Beneficial Use Methods

Ammonia Nitrogen	60300.00	mg/kg
Total Kjeldahl Nitrogen	103000.00	mg/kg
Total Phosphorus	28300.00	mg/kg
Organic Nitrogen	85.40	lbs/ton
Available Nitrogen	146.22	lbs/ton
Phosphate (P_2O_5)	64.81	lbs/ton
Will Immediate Incorporation / Injection be performed?	Yes	

Beneficial Use Site Information

Soil Phosphorus	52.00	ppm	Bray-Kurtz P1		
	52.00	ppm			
Please note that the agronomic rates and phosphorus index have been calculated within the *Calculated Agronomic Rates* section; however, based upon the above provided *Soil Phosphorus* result, you must utilize the most limiting factor or the *Phosphorus Index*:	The Nitrogen Agronomic Rate, the Multi-Year Phosphate Agronomic Rate, or the Phosphorus Index.				
County	Morrow				
Soil Type	Pewamo silty clay loam				
Hydrologic Soil Group	D				

Year 1	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5
Crop Type(s)	Corn (Grain)				
Expected Crop Yield(s)(bu/acre or tons/acre)	180				

Year 2	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5
Crop Type(s)	Soybean				
Expected Crop Yield(s)(bu/acre or tons/acre)	60				

Year 3	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5
Crop Type(s)					
Expected Crop Yield(s)(bu/acre or tons/acre)					

Year 4	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5
Crop Type(s)					
Expected Crop Yield(s)(bu/acre or tons/acre)					

Year 5	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5
Crop Type(s)					
Expected Crop Yield(s)(bu/acre or tons/acre)					

Crop Nitrogen Requirements (Year 1)	215	lbs/acre
Existing Available Nitrogen		lbs/acre
Non-Biosolids Nitrogen Application		lbs/acre
Phosphate (P_2O_5) Fertilizer Application		lbs/acre
Non-Biosolids Organic Phosphate (P_2O_5) Application		lbs/acre
Biosolids Phosphate (P_2O_5) Beneficial Use	95.29	lbs/acre
Total Organic Phosphate (P_2O_5) Fertilizer Application	95.29	lbs/acre

Phosphorus Index

		Subvalue
Soil Loss	5 tons/acre/year	5
Connectivity to "waters of the State"	Concentrated flow does not leave the beneficial use site and is not adjacent to an intermittent or perenial stream.	0
Runoff Class - Slope Range	<1%	6
Soil Phosphorus		3.64
Application - Phosphate (P_2O_5) Fertilizer		0
Method - Phosphate (P_2O_5) Fertilizer	None applied.	0
Application - Organic Phosphate (P_2O_5) Fertilizer		5.72
Method - Organic Phosphate (P_2O_5) Fertilizer	Immediate incorporation or applied on ≥80% cover.	0.5
Does runoff flow through a filter strip designed per USDA Ohio-NRCS Field Office Technical Guide Standard 393?	No	0
Total Phosphorus Index		**20.86**

Calculated Agronomic Rates

Nitrogen Agronomic Rate	1.47	dry tons/acre
i. Calculated Agronomic Rate	1.47	dry tons/acre
Single Year Phosphate Agronomic Rate	1.11	dry tons/acre
Multi-Year Phosphate Agronomic Rate	1.85	dry tons/acre
Phosphorus Index	Medium potential for phosphorus runoff. Use the Nitrogen Agronomic Rate.	

Beneficial Use Site Records

Quantity of Biosolids Beneficially Used	352.1979	dry tons			
Phosphate (P_2O_5) Beneficially Used Per Acre	208.07	lbs/acre			
Acreage	219.4				
Date Biosolids Delivered to Beneficial Use Site	10/3/2018				
Dates of Beneficial Use	10/3/2018	to	10/9/2018		
Total Days Biosolids Stored at Beneficial Use Site	0.00	Days			
Date Signage Posted at Beneficial Use Site	9/25/2018		☐ Yes	Is a permanent sign posted at the beneficial use site?	
Date Signage Removed from Beneficial Use Site	10/17/2018		☑ No		